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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,254	08/18/2003	Kevin Crather	CL1610USNA	4632

23906 7590 06/27/2006

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EXAMINER	
DEL SOLE, JOSEPH S	
ART UNIT	**PAPER NUMBER**
1722	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/643,254	CRATHER ET AL.	
	Examiner	Art Unit	
	Joseph S. Del Sole	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-42 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-42 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 9/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is vague and indefinite because it is unclear whether the limitations of parts e through j are meant to be positively recited. The metes and bounds of the claim are thus unclear. The Examiner notes for instance that claim 10 positively recites a drive shaft. Does this mean that where 10 is concerned claim 1 positively recites a drive shaft but otherwise the drive shaft is not positively recited? Such vagueness must be clarified by amendment.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 10, 12, 14, 16, 18, 20-22, 24, 26, 30, 32, 36 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Guill (3,029,466).

Guill teaches a particle forming apparatus having a housing having a wall and a cavity (Fig 1, B), at least one inlet port (Fig 1, #15) in the wall of the housing for

introducing material into the housing; an extrusion die having a face (Fig 1, #22) with one or a plurality of extrusion holes (Fig 1, #23) through which the material can be extruded from the housing cavity; a cutting assembly (Fig 1) having at least one cutting blade (Fig 1, #36) that cuts the material into individual particles when the material exits the extrusion holes as the cutting blade moves across each extrusion hole, wherein the cutting blade is in close proximity with the face of the extrusion die and moves in a linear, rotating or reciprocating manner; the cutting assembly is rotatably mounted (Fig 1, #32) and further having a plurality of mixing blades for mixing the quench fluid as the cutting assembly rotates in the quench fluid; the quench station further has an inclined surface for collecting the particles and at least one additional collection reservoir for collecting the quench fluid as the quench fluid exits the quench station, wherein the quench fluid is recycled back from the additional collection reservoir into the quench station after the hydrogel particles are collected on the inclined surface (Fig 1); the drive shaft is rotatably mounted in the housing cavity (Fig 1); the mixing device within the housing cavity is driven by the drive shaft (Fig 1); the extrusion die has a central opening and the drive shaft extends through the central opening of the extrusion die and wherein the cutting assembly is rotatably mounted on the drive shaft as it extends through the central opening (Fig 1); the mixing device within the housing cavity is driven by a rotatably mounted drive shaft and the extrusion die has a central opening through which the drive shaft extends and wherein the cutting assembly is rotatably mounted on the drive shaft where it extends through the central opening (Fig 1); the extrusion holes are uniformly spaced apart on the face of the extrusion die (Fig 1); the extrusion holes

are arranged in a circular array when the cutting assembly is rotatably mounted; the extrusion holes have a generally circular cross-section (Fig 1); the face of the extrusion die is treated with or is constructed from a material that has a high contact angle with the material, the material being selected from metals (Fig 1); the extrusion die is constructed from an insulating material selected from metals (Fig 1); the cutting assembly is selected from pitched turbines (Fig 5); the mixing device is a mechanical mixer (Fig 1); the system is heated by at least one heating device (Fig 1, #24); the heating device is selected from thermal mass heaters (Fig 1, #24). The limitations of claims 36-39 are not structural and hence do not limit the structure of the apparatus of the parent claims.

5. Claims 1, 36 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Poteet, III (3,846,529).

Poteet, III teaches a particle forming apparatus having a housing having a wall and a cavity (Fig 1, #11), at least one inlet port (Fig 1) in the wall of the housing for introducing material into the housing; an extrusion die having a face (Fig 1) with one or a plurality of extrusion holes (Fig 1) through which the material can be extruded from the housing cavity; a cutting assembly (Fig 1) having at least one cutting blade (Fig 1, #23) that cuts the material into individual particles when the material exits the extrusion holes as the cutting blade moves across each extrusion hole, wherein the cutting blade is in close proximity with the face of the extrusion die and moves in a linear, rotating or reciprocating manner; the cutting assembly is rotatably mounted and further has a plurality of mixing blades as the cutting assembly rotates; at least mixing device for

mixing components. The limitations of claims 36-39 are not structural and hence do not limit the structure of the apparatus of the parent claims.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poteet, III (3,846,529) in view of Ribble et al (5,429,788) and Kahlert et al (4,639,423).

Poteet, III teaches the hydrogel particle forming apparatus as discussed above including extruding material through the apparatus and cutting the material.

Poteet, III fail to teach specific method steps including biocatalyst and a feed station and a metering device.

Ribble et al teach a method of producing hydrogel particles (col 4, line 38); providing a feed station (Fig 2, #56); metering the suspension by a metering device (Fig 2, screw within #56) having transfer lines (Fig 2, #52) connected to the feed station and receiving hydrogel material therefrom into the hydrogel particle forming apparatus (Fig 2, #44). Kahlert teaches and apparatus partially submerged in a quench fluid (Fig 1); the hydrogel-forming suspension has a hydrogel solution and a biocatalyst (col 4, lines 24-46); the biocatalyst being multi-enzyme complexes (col 4, lines 24-46).

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to have modified the invention of Poteet, III with the method steps as set forth by Ribble and Kahlert because such steps enable metering and the production of hydrogel particles including biocatalyst.

10. Claims 2-9, 11, 13, 15, 17, 19, 23, 25, 27-29, 31, 33-35, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guill (3,029,466) in view of Nash (2,254,237).

Guill teaches the particle forming apparatus as discussed above including extruding material through the apparatus and cutting the material.

Guill fails to teach the feed and metering stations as well as transfer lines and mixing stations.

Nash teaches a feed station (Fig 1, #s32, 42 and 72), a metering device (Fig 1, #37 and #48) having transfer lines for (Fig 1, #45) connected to the feed station and a quench station containing quench fluid (Fig 1, #12); the metering device is a volumetric metering pump (Fig 1, #37 and #48); a mixing device for mixing components before submitted to the apparatus (Fig 1, #78); the mixing device is part of the feed station and part of the transfer line of the metering device; further comprising an additional feed station (Fig 1, #62) for containing fluid and a metering device (Fig 1, #68); and the internal pump within the housing cavity is a volumetric displacement pump.

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to have modified the invention of Guill with the features of Nash because such additional devices would be obvious and enable the full production of particles.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph S. Del Sole whose telephone number is (571) 272-1130. The examiner can normally be reached on M-F 8:30 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joseph S. Del Sole

6/21/06